

REMARKS/ARGUMENTS

Reconsideration is respectfully requested of the Official Action of September 7, 2007 relating to the above-identified application.

A petition for a two month extension of time, together with the associated fee, is filed herewith.

The claims under examination are Claims 17-20.

Applicants reserve the right to file a divisional application with regard to the non-elected subject matter represented by Claims 1-16 and 21-32.

Claims 17-19 are believed to overcome the claim objections set forth in paragraph 3 on page 2 of the Official Action in view of the amendments presented herewith with respect to Claim 17. An effort has been made to provide proper antecedent basis for various terms in the claim.

The rejection of Claims 17-19 under 35 U.S.C. § 103(a) as unpatentable in view of *Shimizu*, US 6,670,098, taken with *Dixon*, US 4,800,461, is traversed and reconsideration is respectfully requested.

Claim 17 which is generic to dependent Claims 18 and 19 defines a multilayer flexible wiring board formed of (i) a plurality of single sided wiring boards; (ii) a flexible wiring board and (iii) an adhesive layer. The plurality of single sided wiring boards and the flexible wiring board are laminated together with the adhesive layer. Reference is made to the present application, page 9, line 16 to page 10, line 9, *et. seq.* and Fig. 5(b) which describes the present invention as a multilayer flexible wiring board comprising a plurality of single sided wiring boards having a wiring pattern formed on one side of a substrate made of an insulating material and two-layer conductor posts and a flexible wiring board having on at least one side thereof pads for connection to the conductor posts and an adhesive layer there between having a flux function.

No surface coating is applied on the wiring pattern on the single sided wiring boards, however, a surface coating is applied on the flexible portion of the flexible wiring board. This feature of the invention is clearly defined in Claim 17.

Because of the absence of a surface coating on the rigid portion, the distance between the conductor posts and the conductor pads is short so that the connection reliability is high and this constitutes an advantage of the present invention.

The Official Action acknowledges that *Shimizu* does not disclose the wiring board as a flexible board.

Shimizu discloses a wiring board wherein a bump (32) is formed for electrical connection to a land (38); see Figure 2, element 4. The electrical connection is established merely by physical contact and hence poor in reliability.

In the present invention, conductor posts (105) and pads (106) are connected by a metal or an alloy so as to attain a high reliability; see Figure 1, especially Figure 1(e) to 1(g). See also [0090] of this application.

The Official Action admits that portion 51 of *Shimizu* is rigid. This is shown in *Shimizu* at col. 11 lines 1-10.

In spite of the clear teaching in *Shimizu* that the middle layer 51 is to be rigid, the Official Action alleges that boards with flexible middle portions with coatings on the flexible portion for protection are known and points to the patent of *Dixon*, US 4,800,461. This reference discloses a circuit board with a flexible portion having an insulating coating (20) on the flexible portion; see col. 3, lines 45-49.

Dixon fails to disclose a plurality of single sided wiring boards having a wiring pattern formed on one side of a substrate made of an insulating material and two-layer conductor posts made of copper and a metal or copper and an alloy, wherein each of the conductor posts projects from the wiring pattern to a side of the substrate opposite the wiring pattern.

In the present invention, the surface coating is provided only in the flexible portion. As a result, conductor posts can be short to attain high connection reliability, and the resulting wiring board can be thin because the multilayer portion includes no surface coating.

Since *Shimizu* teaches that the middle layer must be rigid, it would be contrary to the teachings and explicit instructions of the reference to disregard this requirement for rigidity. Applicants respectfully submit that a person having ordinary skill in this technology would not go contrary to the teachings of *Shimizu* and replace the rigid member with a flexible member having the features recited in Claim 17 (ii).

Applicants respectfully submit that no *prima facie* obviousness has been established by the combination of references relied on in the Official Action and therefore request withdrawal of the rejection.

The rejection of Claim 20 under 35 U.S.C. 103(a) in view of *Shimizu* taken with *Dixon* and further in view of *Nakamura*, US 6,395,993 is traversed and reconsideration is respectfully requested.


The combination of *Shimizu* and *Dixon* has already been discussed and all the comments apply here as well. *Nakamura* fails to teach or suggest that the rigid middle layer of *Shimizu* should be replaced with a flexible layer and that some advantage or benefit would be obtained. Without a teaching in the prior art that the product of *Shimizu* would be benefited in some way by such a modification, the entire construction of references collapses and clearly fails to establish *prima facie* obviousness of the subject matter of Claim 20.

Applicants respectfully request that the rejections be withdrawn and the claims be allowed.

Respectfully submitted,

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